

***Staphylococcus aureus*, Strain N315**

**Catalog No. NR-45898**

**For research use only. Not for human use.**

**Contributor:**

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**Manufacturer:**

BEI Resources

**Product Description:**

Bacteria Classification: *Staphylococcaceae*, *Staphylococcus*

Species: *Staphylococcus aureus*

Strain: N315

NARSA Catalog Number: NRS70

Original Source: *Staphylococcus aureus* (*S. aureus*), strain N315 was isolated in 1982 from a pharyngeal smear of a patient in Japan.<sup>1</sup>

Comments: *S. aureus*, strain N315 is a methicillin-resistant *S. aureus* (MRSA) strain. *S. aureus*, strain N315 was deposited as resistant to clindamycin, erythromycin and spectinomycin; positive for *mec* (subtype II); pulsed-field type USA100; MLST sequence type (ST) 5; eGenomic *spa* type 2, eGenomic *spa* repeats TJMBMDMGMK; Ridom *spa* type t002; *agr* grp II.<sup>1-3</sup> It also has a large variety of virulence factors.<sup>1</sup> *S. aureus*, strain N315 is a USA100 isolate. USA100 isolates have the same MLST profile (ST 5) and SCC*mec* (subtype II) and are usually resistant to  $\beta$ -lactams, erythromycin and spectinomycin as well as being multiresistant to other commonly used therapeutic agents. USA100 is the most prevalent U.S health care-associated pulse-field type and is endemic in many U.S. hospitals.<sup>3</sup> The complete genome sequence of *S. aureus*, strain N315 is available (GenBank: [BA000018.3](http://www.ncbi.nlm.nih.gov/GenBank/BA000018.3)). It is the representative genome for *S. aureus*. Note: Methicillin is no longer clinically used, however, the term methicillin-resistant *Staphylococcus aureus* (MRSA) continues to be used to describe *S. aureus* strains resistant to all penicillins.

*S. aureus* is a Gram-positive, cluster-forming coccus that normally inhabits human nasal passages, skin and mucus membranes. It is also a human pathogen and causes a variety of pus-forming infections as well as food-poisoning and toxic shock syndrome. In 1961, two years after the introduction of methicillin, a penicillinase-resistant penicillin, *S. aureus* developed methicillin-resistance due to acquisition of the *mecA* gene. For the last forty-five years hospital-acquired (HA) MRSA strains have disseminated worldwide. More recently, MRSA strains have been isolated that are not hospital acquired and are referred to as community-associated (CA) MRSA. These CA-MRSA strains differ phenotypically and genotypically from HA-MRSA strains and they are more frequently recovered from skin and soft tissue

sources rather than post-operative wounds.<sup>4,5</sup>

**Material Provided:**

Each vial contains approximately 0.5 mL of bacterial culture in Tryptic Soy broth supplemented with 10% glycerol.

Note: If homogeneity is required for your intended use, please purify prior to initiating work.

**Packaging/Storage:**

NR-45898 was packaged aseptically in cryovials. The product is provided frozen and should be stored at -60°C or colder immediately upon arrival. For long-term storage, the vapor phase of a liquid nitrogen freezer is recommended. Freeze-thaw cycles should be avoided.

**Growth Conditions:**

Media:

Brain Heart Infusion broth or Tryptic Soy broth or equivalent Brain Heart Infusion agar or Tryptic Soy agar with 5% defibrinated sheep blood or equivalent

Incubation:

Temperature: 37°C

Atmosphere: Aerobic

Propagation:

1. Keep vial frozen until ready for use, then thaw.
2. Transfer the entire thawed aliquot into a single tube of broth.
3. Use several drops of the suspension to inoculate an agar slant and/or plate.
4. Incubate the tube, slant and/or plate at 37°C for 18 to 24 hours.

**Citation:**

Acknowledgment for publications should read "The following reagent was provided by the Network on Antimicrobial Resistance in *Staphylococcus aureus* (NARSA) for distribution by BEI Resources, NIAID, NIH: *Staphylococcus aureus*, Strain N315, NR-45898."

**Biosafety Level: 2**

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories. 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see [www.cdc.gov/biosafety/publications/bmbl5/index.htm](http://www.cdc.gov/biosafety/publications/bmbl5/index.htm).

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**References:**

1. Cassat, J. E., et al. "Comparative Genomics of *Staphylococcus aureus* Musculoskeletal Isolates." J. Bacteriol. 187 (2005): 576-592. PubMed: 15629929.
2. NARSA, NRS70.
3. McDougal, L. K., et al. "Pulsed-Field Gel Electrophoresis Typing of Oxacillin-Resistant *Staphylococcus aureus* Isolates from the United States: Establishing a National Database." J Clin Microbiol. 41 (2003): 5113-5120. Pubmed: 14605147.
4. Deurenberg, R. H. and E. E. Stobberingh. "The Evolution of *Staphylococcus aureus*." Infect. Genet. Evol. 8 (2008): 747-763. PubMed: 18718557.
5. Davis, S. L., et al. "Epidemiology and Outcomes of Community-Associated Methicillin-Resistant *Staphylococcus aureus* Infection." J. Clin. Microbiol. 45 (2007): 1705-1711. PubMed: 17392441.

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